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THE PLANT DISEASE REPORTER

Issued By

THE PLANT DISEASE SURVEY

Division of Mycology and Disease Survey

BUREAU OF PLANT INDUSTRY, SOILS, AND AGRICULTURAL ENGINEERING

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SUPPLEMENT 194

SOME NEW OR NOTEWORTHY PLANT DISEASE RECORDS AND OUTSTANDING DEVELOPMENTS IN THE UNITED STATES IN 1949

Supplement 194 June 30, 1950

The Plant Disease Reporter is issued as a service to plant pathologists throughout the United States. It contains reports, summaries, observations, and comments submitted voluntarily by qualified observers. These reports often are in the form of suggestions, queries, and opinions, frequently purely tentative, offered for consideration or discussion rather than as matters of established fact. In accepting and publishing this material the Division of Mycology and Disease Survey serves merely as an informational clearing house. It does not assume responsibility for the subject matter.

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THE PLANT DISEASE SURVEY
DIVISION OF MYCOLOGY AND DISEASE SURVEY

Plant Industry Station Beltsville, Maryland

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Compiled by Nellie W. Nance

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As in previous years this summary of outstanding plant disease occurrences in the United States has been taken for the most part from the reports to the Plant Disease Survey.

Weather of 1949. Since the disease situation appears to be directly correlated with the weather conditions, it seems desirable to review the weather of 1949 in the United States. (Monthly Weather Review, December 1949)

The winter of 1948-49 was a period of marked weather extremes which reached peak intensity during the first six weeks of 1949. This was the coldest winter on record west of the Continental Divide and the most severe on record in the northern Great Plains and generally throughout the Rocky Mountain and Pacific States. On the other hand it was the third warmest in most sections east of the Mississippi River. Extremes of precipitation were greatest in the Midwest and Great Plains where many sections received 200 to 400 percent of normal for the season.

Temperatures rose rapidly in the West during the last half of February and by the end of the month had returned to normal levels. The spring season (March-May), which was warmer than normal in practically all sections of the country, favored rapid growth of vegetation. Much above-normal precipitation in the Great Plains and lower Mississippi Valley was unfavorable to small grains and caused considerable delay in planting and cultivation.

Summer (June-August) was also warmer than usual in all sections, especially in the Lake Region and the New England and Middle Atlantic States where mean temperatures exceeded the normal by 4° to 6° F. Precipitation was below normal in the West, the northern Plains, and the Northeast but was generally normal or above in the southeastern quarter of the country. The cotton crop in the middle and eastern sections of the Main Belt suffered from lack of proper cultivation and from insect infestation due to prolonged intervals of rainy weather.

Autumn (September-November) was warmer than normal nearly everywhere in the United States, while only scattered sections received above-normal precipitation. This relatively warm, dry autumn was very favorable for the early maturity of most crops and enabled harvesting operations to make rapid progress.

The number of severe local storms during May and June was one of the highest on record and total damage was very high, but these storms were relatively few during the other months.

Disease Fluctuations. For the past several years it has been interesting to note the high degree of fluctuation in occurrence, prevalence and severity of plant diseases in the United States. In 1948 plant diseases were generally less prevalent than in an average year. There were no widespread epidemics and losses were much less than in 1947. Owing to the hot dry weather and adequate control measures late blight did not reach the epidemic proportions of the 1946 late blight attack. Victoria blight of oats seemed relatively unimportant as compared to 1947. In 1948 leaf rust of wheat was the lightest it had been for ten years. Tobacco blue mold and cucurbit downy mildew were generally lighter than in past years.

The year 1949, along with 1932, 1933, 1937 and 1947, was considered a severe blue mold year. There seemed to be a high coincidence between the intensity of blue mold in the five severe years and the above-normal January temperatures in those years at five southern points.

In 1949 plant diseases caused a greater loss to small grains in Texas than in any year of the history of the State. In some oat-producing States it seemed that adverse weather, nitrogen starvation and insect attacks were more important in reducing yields than parasitic diseases. Stripe was the most serious disease of barley in California in 1949. It was much more prevalent than in any of the past 15 years. Mosaic of a western type was found in Kansas, causing much damage. For wheat leaf rust 1949 seemed to be average.

Surveys indicated that citrus canker has been entirely eliminated. Oak wilt, one of the most destructive tree diseases, became more widespread in 1949.

The worst epidemic of cucurbit downy mildew since 1938 occurred this year in South Carolina.

During the year 19 diseases were reported in States where they had not been found before on a particular host. (Table 1). Diseases found or reported in this country for the first time in 1949 or found on new hosts are listed in Table 2.

Table 1. Diseases reported in States where they had not been found or reported on a particular host until 1949.*

Host Disease (Cause)	Where found	Remarks
BARLEY		
Downy mildew (Sclerospora macrospora)	Missouri	Believed to be the first report of the fungus from Missouri and the Middle West. Scattered plants in a low wet area found to be infected. (PDR 34: 29-30)
CORN		
Leaf rust (Puccinia polysora)	Indiana	Found along the Ohio River (PDR 34: 98-99)
PEACH		
Bitter rot (Glomerella cingulata)	Texas	Found on 10 to 25% of the fruits on five peach trees at the Tomato Disease Laboratory near Jacksonville. (PDR 33: 389)
MIMOSA		
Fusarium wilt (F. oxysporum f. perniciosum)	New Jersey	Organism isolated from a diseased mimosa tree at Cape May in July 1949. (Jour. N. Y. Bot. Gar. Oct. 1949)
SNAPDRAGON		
Downy mildew (Peronospora antirrhini)	New York	Found affecting 2 to 3% of blooming plants in a greenhouse near Troy in February. (PDR 33: 234)
CAMELLIA JAPONICA		
Flower spot (Sclerotinia camelliae)	Oregon	Disease introduced into California from the Orient a few years ago. (see p. 372)
CHRYSANTHEMUM		
Ascochyta ray blight (Mycosphaerella ligulicola)	California	Perfect stage of Ascochyta chrysanthemi. (see p. 372)
POPPY		
Bacterial blight (Xanthomonas papavericola)	Arizona	Reported to be common in poppies in flower gardens. (see p. 372)
COTTON		
Root constriction (Physiological)	Arizona	Previously reported from California and Texas. (PDR 33: 302)
Browning and stem break (Polyspora lini)	Arizona	Isolated from specimens sent in from Deer Valley and Safford. (PDR 33: 302)

*For new State records of grasses see PDR 33: 147-158, 259-270.

Table 1. (Continued)

Host Disease (Cause)	Where found	Remarks
BUDDLEIA ASIATICA, BUTTERFLY-BUSH		
"Scab" (Cladosporium heugelinianum)	Virginia	This specimen may be the second finding of the fungus in America. (PDR 33(6): 274)
GREEN ASH		
Verticillium wilt (Verticillium albo-atrum)	Colorado	Common on elms and maples but first isolation from ash. (PDR 34: 83)
OAK		
Wilt (Chalara quercina)	Indiana	Its prevalence in the State is not known. (PDR 33: 332)
STAGHORN SUMAC		
Fusarium wilt (Fusarium oxysporum f. rhois)	Virginia Connecticut	Not reported from any other localities to date or any other species of Rhus. (see p. 376)
Leaf spot (Alternaria tenuis)	Colorado	Limited to a few trees in widely separated areas in Denver. (PDR 34: 83)
ONION		
Smut (Urocystis cepulae)	California	Found in a two-acre onion plant bed in Stanislaus County. This plot of land had been used as an onion plant bed for 8 years. (PDR 33: 451-452)
CABBAGE		
Yellows (Fusarium oxysporum f. conglutinans)	Louisiana	Occurred in fall of 1948. No explanation as to how and when the fungus was introduced. (PDR 33: 233)
SWEETPOTATO		
Mottle necrosis	Louisiana	Recorded for first time on July 29. Fungus isolated appeared to be different from Pythium ultimum or P. scleroteichum. (PDR 34: 61)
POTATO		
Powdery mildew (Erysiphe cichoracearum)	Washington	Perithecial stage. Since this is the first clearly identifiable case of this fungus on potatoes in natural conditions, a description is given. (PDR 34: 140-141)

Table 2. Diseases found or reported in this country for the first time in 1949 = *; diseases found on new hosts = **. New disease strain = ***.

Host Disease (Cause	Where found	Remarks
BROOMCORN		
Septoria leaf blight *	Illinois, perhaps first reported in U. S.	Found in Douglas County. Three fields showed 100% infection. (PDR 33: 384)
WHEAT		
Cladosporium herbarum *	Kentucky	Reported to cause a serious disease in Europe. (PDR 34: 24-26)

Table 2. (Continued)

Host Disease (Cause	Where found	Remarks
ANNUAL YELLOW SWEET-CLOVER **		
CRIMSON CLOVER **		
REDROOT AMARANTHUS **	California	
Sugar beet mosaic (Virus)		Naturally infected (see p. 369)
RED CLOVER		
Anther mold * (Botrytis anthophila)	Oregon Washington	Found on seeds. (PDR 33: 396)
LADINO CLOVER		
Yellow patch *** (Marmor medicaginis H. var. Ladino n. var.)	Northeastern U. S.	From host range and other properties, the virus was identified as a strain of alfalfa mosaic virus different from any described previously. (see p. 370)
TAHITI LIME		
Dodder galls ** (Cuscuta americana)	Florida (1948)	Similar to Sphaeropsis tumefaciens. Leads to stunting of twig growth. (Phytopath. 39: 616-620)
SOUR CHERRY		
Raspleaf ** (virus)	Colorado	Commonly considered to be present only on sweet cherries. (PDR 34: 57)
FLAMERAY GERBERA		
Gray mold ** (Botrytis cinerea)	Pacific Northwest	Found growing on this new host in one of the local greenhouses. (Phytopath. 39: 949-950)
GARDEN STOCK		
Leaf spot * (Alternaria raphani)	California	This disease has caused complete destruction of several small plantings. (see p. 372)

DISEASES OF CEREAL CROPS

L. M. Josephson and D. A. Reid, reporting on small grain diseases in Kentucky in 1949, stated that in general, many of the common diseases were not so heavy as in 1948, but several of the generally more minor diseases caused damage in localized areas. Central Kentucky was relatively dry during the spring months, while in some areas in the western part of the State excessive rainfall delayed field work at times and promoted incidence of certain diseases. (PDR 34(1): 24-26).

Plant diseases caused a greater loss to small grain in Texas in 1949 than in any year of the history of the State, according to reports by I. M. Atkins. He estimated losses for the State as follows: wheat 20.5 percent, oats 21.9 percent; barley 7.8 percent. (PDR 34(2): 40-42).

Curtis W. Roane reported incidence of diseases of small grains in Virginia in 1949. Leaf and stem rusts, powdery mildew, and the smuts, caused the greatest toll and are severe each year. Other diseases were only of local concern. (PDR 33(12): 480-482).

R. W. Leukel reported results of cooperative field experiments, which were carried out at several stations in seven Southern States to determine the relative effectiveness of certain fungicides for the control of several seed-borne diseases of cereals. (PDR 33(7): 295-299).

AVENA SATIVA. OATS: H. R. Rosen contributed the annual report on oat diseases in Arkansas. He stated that while parasitic diseases were common throughout the State, as appeared evident in a statewide survey conducted in May and June, it seemed that adverse weather, nitrogen starvation, and insect attacks were more important in reducing yields in 1948-49 than parasitic diseases. In any case, the average State yield of 27 bushels per acre in 1949 marks the first year in the last four in which there was no increase in the average yield over the immediate preceding years, and actually showed a reduction of 5.5 bushels from the 1948 yield. (PDR 34(2): 43-44).

Helminthosporium victoriae, blight, and Puccinia coronata avenae, crown rust. In Florida, S. C. Litzenberger reported that during the latter part of January, 1949, a thorough survey was made of the prevalence of these two major oat diseases. Blight and crown rust Race 45 or similar races were found present on susceptible varieties at all locations checked. The severity of infection centered around Gainesville and decreased somewhat to the northward. (PDR 33(3): 146).

T. R. Stanton presented available information concerning 13 varieties of oats resistant to Victoria blight now available for growing or for planned early distribution. (Circ. U. S. Dept. Agr. 795, 7 pp. 1949).

HORDEUM VULGARE. BARLEY: Helminthosporium gramineum, stripe, was reported by Suneson as the most serious barley disease in California this year. It was much more prevalent than in any of the past 15 years. At least one-fourth of the 1949 northern California acreage was sown without any kind of seed treatment. One 80-acre field of barley averaged about 70 percent rust. (PDR 33(7): 300).

Sclerospora macrospora, downy mildew, first report from Missouri and Middle West, see Table 1.

Mosaic (virus). Preliminary tests reported by D. F. Wadsworth indicated that a mosaic found in a single barley plant in Oklahoma was different from wheat mosaic. (PDR 33(12): 482-483).

LINUM USITATISSIMUM. FLAX: Fusarium oxysporum f. lini, wilt. Houston and Knowles reported the fifty-year survival of the Fusarium wilt organism in the absence of flax culture in the coastal area of San Mateo County, California. The ability of the fungus to survive at such a high level of infestation in the absence of flax culture was found to be due to the presence of a "wild" flax growing in that area. Other diseases were found occurring naturally on the uncultivated flax. (PDR 33(1): 38-39).

Mycosphaerella linorum, pasmo, was unusually destructive to seed flax in South Texas during the spring of 1949, according to Dunlap and Harrison. The first occurrence of the disease was noted in February. Its unusually early appearance this year resulted in the plowing under of many fields several weeks before harvest. Some yields of as low as seven or eight bushels per acre were obtained in the counties most seriously affected. (PDR 33(10): 402-403).

SORGHUM VULGARE. SORGHUM: E. S. Luttrell described grain sorghum diseases in Georgia in 1949. Humid weather combined with early planting favored the development of a number of leaf, head and stalk diseases of grain sorghums in variety tests. Seedling diseases were not an important factor. Bacterial stripe (Pseudomonas andropogoni), zonate leaf spot (Gloeocercospora sorghi), gray leaf spot (Cercospora sorghi), anthracnose (Colletotrichum graminicolum), and rust (Puccinia purpurea) were important foliage diseases on some or all varieties. At one location stalk rots were serious, making harvesting difficult and causing losses in grains. (PDR 34(2): 45-52).

SORGHUM VULGARE VAR. TECHNICUM. BROOMCORN: Septoria leaf-blight, see Table 2. Benjamin Koehler and C. M. Woodworth reported that the warm humid weather that prevailed during the summer made conditions favorable for several broomcorn diseases to flourish in Illinois. The principal ones were anthracnose (Colletotrichum graminicolum), Septoria leaf blight, Helminthosporium leaf blight, and bacterial stripe blight (Pseudomonas andropogoni), anthracnose being the most serious one. Herbarium specimens showed that Septoria blight occurred in the Arcola area as far back as 1943, but it was not recognized as Septoria until this year. Helminthosporium developed during August, but did not become as serious as Septoria. (PDR 33(10): 385-386).

TRITICUM AESTIVUM. WHEAT: Puccinia rubigo-vera var. tritici, leaf rust. Chester and Wadsworth made the ninth experimental forecast of wheat leaf rust in Oklahoma. (PDR 33(5): 223-226).

Mosaic (virus). According to a survey reported by Hurley Fellows wheat mosaic of a western type was found from the northern to the southern borders of western Kansas, causing much damage. (PDR 33(10): 356-358). Experiments in the infested areas in Kansas in the 1930's indicated that infested fields do not remain contaminated from one season to the next.

ZEA MAYS. CORN: Aerobacter dissolvens (Erwinia carotovora), bacterial stalk rot, appeared suddenly and was widespread in southern Illinois and as far north as Champaign County. The disease was much more prevalent in 1949 than in previous years. No control measures are known. (Boewe, G. H., PDR 33(9): 342).

Pythium butleri, stalk rot, was reported in three counties in Kentucky by Valleau and Diachun. Growers claimed that they had never seen the disease in river-bottom corn before. They stated that the exceptionally high temperatures and high humidity brought about conditions ideal for infection by the fungus. On an average the loss was very small, but in small areas as high as 50 percent of the plants were rotted and fallen over. (PDR 33(9): 341).

Arnold J. Ullstrup, in reporting on corn diseases in Indiana in 1949, stated that the general increase in prevalence and severity of the more common corn diseases, and the occurrence of a few unusual diseases of this crop seemed worthy of comment. Rust (Puccinia polysora) was found for the first time in Indiana along the Ohio River. Northern corn leaf blight (Helminthosporium turcicum) occurred in epidemic form. The disease situation appeared to be directly correlated with the weather conditions that prevailed during the growing season. (PDR 34(4): 98-99). Ullstrup reported Pythium stalk rot from nearly every section of Indiana. The onset of the disease was preceded by two weeks of hot humid weather in which maximum temperatures were in excess of 90° F. The disease had occurred before in Indiana, but only in insignificant proportions. (PDR 33(8): 331).

DISEASES OF FORAGE AND COVER CROPS

GRAMINEAE. GOLF GREENS: Pythium butleri, "grease spot," caused considerable concern to numerous greenkeepers in Indiana and the Chicago district in 1949, according to Sharvelle and Likes (Midwest Turf 3(4): 3, 1949). Golf greens that are almost surrounded by trees or located in low valleys are particularly susceptible to the disease. They state that if all conditions are favorable the disease is capable of destroying 30 to 40 percent of a putting green surface within 24 hours. In 1949 application of iron sulfate at the rate of one pound in 30 gallons of water applied to 5000 square feet of turf definitely appeared to stop the Pythium disease.

MEDICAGO SATIVA. ALFALFA: In Virginia during the period March 21 to 25 alfalfa and clover fields were visited in six Virginia Counties, by Fenne and others. Sclerotinia sclerotiorum was found on alfalfa in most of the areas visited except in Orange County. Black stem (Ascochyta imperfecta) was found generally distributed in almost every alfalfa field examined and in many instances had already caused severe injury. The disease was especially destructive on new stands of alfalfa. Ditylenchus sp., stem nematode, was found widespread on one farm in Henrico County. The disease was more severe this year and apparently was responsible for killing out the stands of susceptible varieties. Corynebacterium insidiosum, bacterial wilt, was found in James City and Henrico Counties. (PDR 33(6): 255-257).

SOJA MAX. SOYBEAN: Of the nine diseases occurring in Iowa in 1949, J. M. Crall reported that only brown stem rot (Cephalosporium gregatum) and stem canker (Diaporthe phaseolorum var. batatatis) caused serious loss. Distribution of the known occurrences of these two diseases in the State is shown on maps. (PDR 34(4): 96-97).

TRIFOLIUM SPP. CLOVER: In Virginia, during the period March 21 to 25 clover and alfalfa fields were visited in six Virginia Counties, by Fenne and others. Sclerotinia trifoliorum, stem rot, was readily found on Crimson and Red clovers, and in Culpeper County it was causing serious injury on Ladino clover. In general Ladino clover was less seriously affected by the disease than other clovers. The most severe injury caused by Sclerotinia on the entire trip was observed on a legume-grass farm in Fairfax County. (PDR 33(6): 255-257).

TRIFOLIUM INCARNATUM. CRIMSON CLOVER: Sugar beet mosaic virus. C. W. Bennett reported three species of plants, apparently not hitherto recorded as hosts of sugar beet mosaic virus, were found naturally infected in southern California fields, namely Amaranthus retroflexus, Melilotus indica, and crimson clover (Trifolium incarnatum). The disease was transmitted

experimentally by means of Myzus persicae from sugar beets to these species, as well as the following, also apparently new hosts: Beta patellaris, Browallia speciosa, Nicotiana quadrivalvis and its var. multivalis, N. clevelandi, Phacelia campanularia, Little Gem garden pea, and Samolus parviflorus. Sugar beets were infected from each of these plants by juice inoculations. (Phytopathology 39(8): 669-672).

TRIFOLIUM PRATENSE. RED CLOVER: Botrytis anthophila, anther mold. The first record of anther mold on red clover in the United States was reported by John R. Hardison from the Pacific Northwest. R. A. Silow suggested the presence of B. anthophila in this country, since he had reported the disease in Great Britain on red clover grown from seed of American origin. (PDR 33(10): 396).

TRIFOLIUM REPENS. LADINO CLOVER: Kreitlow and Price reported a new virus disease of Ladino clover known as yellow patch, which was prevalent in north-eastern United States. The virus is given the trinomial Marmor medicaginis H. var. Ladino n. var. (Phytopathology 39(7): 517-528).

DISEASES OF FRUIT CROPS

CITRUS SPP. Xanthomonas citri, citrus canker. The 1947-49 survey for citrus canker in Texas and Arkansas had completely negative results, according to W. A. McCubbin. Since the discovery of this destructive pest in 1913 the eradication campaign started by the Federal and State governments has succeeded in eliminating this bacterial parasite from nurseries and commercial citrus in 7 infected States (Alabama, Florida, Georgia, Louisiana, Mississippi, South Carolina and Texas) within a few years. (PDR 33(10): 394-395).

Hurricane damage. L. Carl Knorr reported the first summary of loss estimates to Citrus caused by the Florida hurricane of August 27, 1949. The greatest damage was to grapefruit, already the smallest crop since 1939-40. The greatest loss to citrus occurred by the tearing off of the fruit. (PDR 33(10): 391-394).

CITRUS AURANTIFOLIA. TAHITI LIME: L. Carl Knorr described a gall of the branches of Tahiti lime in Florida, similar to that caused by Sphaeropsis tumefaciens, and attributed its formation to Cuscuta americana L. He pointed out that such dodder galls lead to a stunting of twig growth and are the seat of haustoria that remain to regenerate aerial vines after the dodder has ostensibly been eradicated. Control of dodder in limes necessitates the pruning out of infected wood or the hatracking of the tree. (Phytopath. 39(8): 616-620).

FRAGARIA SP. STRAWBERRY: Diachea leucopoda, slime mold, was found in Texas in May 1949 according to E. M. Hildebrand. The fungus had grown up the plant surface involving half or more of the leaf surface from the soil line and had covered the leaves to the extent that shading was seriously affecting the vitality of the plants. (PDR 33(7): 301-302).

MALUS SYLVESTRIS. APPLE: Venturia inaequalis, scab. Kirby reported much earlier than usual development of apple scab spores in Pennsylvania. (PDR 33(4): 205). Goldsworthy, Dunegan and Wilson reported that the experiments in 1947-48-49 seasons when apple scab was generally very prevalent and difficult to control in many orchards, appeared to indicate that the use of eradicant fungicides applied in two steps is of promise in the control of this disease, first by eliminating a great deal of the ascospore inoculum in the diseased leaves that lie on the orchard floor, and, second by eradicating the early infections that develop on leaves and fruit from the small amount of ascospore inoculum that escapes the floor treatment. These tests appeared to confirm previous experiments showing that the use of eradicants on the floor of the orchard does not eliminate the need of subsequent sprays to control the disease. These tests likewise showed that the use of an eradicant at the time of bloom or later is also inadequate for controlling the disease in seasons of epidemic, with one or several applications. The experiments indicated that if the eradicants are used in a logical sequence, the problem of scab control is simplified. (PDR 33(8): 312-318).

PRUNUS ARMENIACA. APRICOT: Monilinia laxa, brown rot blossom blight. Neither Bordeaux mixture nor petroleum oil had a significant effect on the eradicative action of monocalcium arsenite against M. laxa on apricot, at concentrations used in investigations reported by E. E. Wilson from California. (PDR 33(7): 287-289).

PRUNUS CERASUS. SOUR CHERRY: Sulfur injury to sour cherry petals, observed in Pennsylvania this year, was probably indirect, the primary cause of the actual petal killing was due to low temperature, according to F. H. Lewis and R. S. Kirby. In 1950, lime sulfur will likely be replaced by Bordeaux mixture or one of the proprietary copper compounds. (PDR 33 (7): 290).

Spray injury. In observations reported by D. Petersen and D. Cation from Michigan, the amount of spray injury to sour cherry petals during warm weather was affected more by the time of day when applications were made than by the different materials used. (PDR 33(12): 479-480).

Ring spot and sour cherry yellows virus diseases were present and widespread in Colorado. (PDR 34(2): 57).

PRUNUS PERSICA. PEACH: Glomerella cingulata, bitter rot. Young sent in the first report of bitter rot on peach from Texas. However, he stated that bitter rot of apple had been serious in orchards. (See Table 1.)

Cross inoculations with G. cingulata from peach and from lupine showed that strains isolated from one host can infect the other, according to John L. Weimer and J. C. Dunegan. (PDR 33 (11): 416-417).

Xanthomonas pruni, bacterial spot. Curtis L. Mason reported that very favorable results were obtained from sodium hypochlorite applied as a spray for control of peach bacterial wilt and brown rot, Monilinia fructicola, in Arkansas. He suggested that this material may have wide use in the control of plant diseases. (PDR 33(8): 319-320).

Monilinia fructicola, brown rot. According to Panos L. Poulos experimental use of sodium hypochlorite for control of peach brown rot in Delaware was not successful. (PDR 33(11): 413-415).

Preliminary experiments in Michigan with the antibiotic Acti-dione for the control of peach brown rot and cherry leaf spot, Coccomyces hiemalis, are summarized by D. Petersen and D. Cation. (PDR 34(1): 5-6).

Pratylenchus sp., meadow nematode, was reported by Frank D. Johanson in Connecticut. The rotting of the roots was explained as being caused by secondary fungus or bacterial infection. These rot organisms gained entrance through lesions made in the rootlets by the nematode. Pratylenchus has been found to injure roots of many different plants. (PDR 33(4): 204-205).

VITIS SPP. GRAPE: Winter injury. For the first time in the memory of Concord grape growers in the area, winter injury appeared in the vineyards around Kennewick, Washington, according to R. E. Jones. Attempts were made to single out some one factor as the immediate cause of vine damage to correlate with the extremes of temperatures which were experienced in the area during the winter 1948-1949. No single cause has been found although the vines which previously had been the most vigorous were seemingly hardest hit. At least a portion of the damage occurred early in the fall when a hard freeze attack struck the area before the fruit was harvested. The winter weather that followed was probably the greatest factor involved. During the six-weeks' period from December 20 to February 10, two periods of extremely low temperature occurred. The extremes ranged to 15° below zero. Tests showed that the ground was frozen to a depth of 33 to 36 inches during this period. Jones stated that as far as production is concerned the damage will be felt for several years. (Better Fruit 44(1): 7, July 1949).

RIBES SPP. CURRANT: Cronartium ribicola, blister rust. Canadian black currants showed blister rust immunity under field conditions in Connecticut, according to Glenn G. Hahn and Alton Miller. (PDR 33(6): 275-276). Observations on widespread tests of immune ribes reported by Hahn give no evidence that physiologic races of the white pine blister rust fungus exist in North America. (PDR 33(7): 291-292).

DISEASES OF NUT CROPS

P. W. Miller reported on the incidence of diseases of filbert and walnut in the Pacific Northwest in 1949. (PDR 34(2): 38-39).

CARYA ILLINOENSIS. PECAN: Cladosporium effusum, scab. According to John R. Large, on February 25, 1949, sporulating scab lesions on leaflets of volunteer seedling pecan trees were observed near Monticello, Florida. Several pecan trees had leaflets one-third grown on this date. Due to warm weather budding appeared about three weeks earlier than usual. (PDR 33(4): 206).

JUGLANS SIEBOLDIANA. JAPANESE WALNUT: Witches'-broom (virus). Julian H. Miller and G. E. Thompson reported this virus disease on Japanese walnuts in Georgia. The disease had been prevalent since 1938. (PDR 33(12): 455).

DISEASES OF ORNAMENTALS

F. P. Hubert and W. H. Wheeler reported and listed diseases found in domestic-grown flower bulbs, during a survey made by the Division of Domestic and Foreign Plant Quarantines. (PDR 34(2): 53-55).

ALBIZZIA JULIBRISSIN. MIMOSA: Fusarium oxysporum f. perniciosum, wilt, according to P. P. Pirone, has been known since 1930. It is now known to occur from Maryland to Georgia. Up to 1949 the northernmost point of its occurrence was Silver Springs, Maryland. In July 1949, Pirone isolated the fungus from a diseased tree at Cape May, New Jersey. Although this new location is no farther north than Silver Springs, it is nearly 100 miles eastward, thus greatly extending its present range. This is the first report of its occurrence in New Jersey. (Jour. N. Y. Bot. Gar. October 1949).

ANTIRRHINUM MAJUS. SNAPDRAGON: Peronospora antirrhini, downy mildew, see Table 1.

AZALEA: Exobasidium azaleae. Unusual incidence of this disease was reported by E. C. Tullis in Texas. It seemed to have followed up two dry seasons with extreme cold during the winter. There was also extra heavy rainfall during the spring season when these plants were putting on new growth. (PDR 33(5): 234).

CAMELLIA. CAMELLIA: Sclerotinia camelliae, flower spot, was introduced into California from the Orient a few years ago. The disease has invaded Oregon plantings. It has been found in plantings at Eugene, Albany, Oregon City, and Portland. (PDR 33(10): 404).

CHRYSANTHEMUM SPP.: Mycosphaerella ligulicola, Ascochyta ray blight, has been an important disease in North Carolina for more than 40 years without much spread to other areas according to Kenneth F. Baker and others. It occurs also in South Carolina, Mississippi, Florida, and Maryland. H. N. Hansen and W. C. Snyder observed Ascochyta pycnidia and Mycosphaerella perithecia on dead stem bases of commercial chrysanthemums from San Mateo County in March 1949. This is the first report of the disease from California, and this record is therefore of unusual interest since it shows that the fungus will persist in an area of unfavorable climate where the natural flower infections are not known to occur. M. ligulicola is described by the writers as the perfect stage of Ascochyta chrysanthemi. Control measures to reduce inoculum carryover and the disease in the field have been tried out. (Phytopath. 39(10): 789-805).

ERYTHRONIUM GRANDIFLORUM VAR. PALLIDUM. LAMBSTONGUE FAWNLILY: Botrytis elliptica. MacLean and Shaw reported that B. elliptica was found associated with a stem, leaf and petal spotting of E. grandiflorum var. pallidum growing in its native habitat in Garfield County, Washington. (Phytopath. 39(11): 949-950).

GERBERA JAMESONII. FLAMERAY GERBERA: Botrytis cinerea, gray mold, new host. (See Table 2.)

MATHIOLA INCANA. GARDEN STOCK: Alternaria raphani, leaf spot. Lily H. Davis and others reported the occurrence of this leaf spot in California. The disease was first observed in commercial fields of garden stock in June 1946. It was not particularly damaging at that time, but growers reported severe losses later in that and the following year. In October 1948 it was again observed and has since caused complete destruction of several small plantings. They state that apparently this is the first report of the fungus on Mathiola in this country. (PDR 33(11): 432-433).

PAPAVER SPP. POPPY: Xanthomonas papavericola, bacterial blight. From Flagstaff, Arizona diseased oriental poppies were sent in for identification according to J. B. Brown and Alice M. Boyle. The cause was found to be bacterial blight. The disease was reported to be common in poppies in flower gardens, but this was the first identification of the bacterium in the State. (PDR 33(7): 302-303).

PELARGONIUM SP. PELARGONIUM: Pseudomonas erodii, bacterial leaf spot, is described by E. M. Hildebrand and A. C. Yezak in Texas on Pelargonium. The wild crane's bill, Erodium texanum, a plant native to central Texas, is the only wild plant known to be susceptible to infection by this organism. Susceptible species have been found only in the two genera, Erodium and Pelargonium. (PDR 33(7): 293-294).

DISEASES OF SPECIAL CROPS

AGARICUS CAMPESTRIS. MUSHROOM: Peter A. Ark discusses occurrence and control of mushroom diseases in California. Dactylium sp. was serious in one house and caused 50 percent loss in the crop. Verticillium sp., causing the so-called dry bubble disease, was found in a great number of mushroom houses where casing soil is not sterilized prior to filling the beds. It was especially severe in houses with poor sanitation. (PDR 33(4): 181-182).

Ditylenchus sp. Lambert, Steiner and Drechsler reported that examination of compost from mushroom establishments in Pennsylvania and Delaware indicated that the "Cephalothecium disease" of cultivated mushrooms, in which a surface mold is associated with a destruction of the mushroom mycelium, is really due to a nematode (Ditylenchus sp.). The mold, isolated from three locations, was identified as Arthrobotrys superba. (PDR 33(6): 252-253).

ARACHIS HYPOGAEA. PEANUT: In Alabama, Coyt Wilson reported that available evidence indicated that the value of seed protectants for peanuts lies in the prevention of seed rot between the time of planting and germination. (PDR 34(4): 87-95).

Sclerotium rolfsii, see under Nicotiana tabacum.

Several species of parasitic nematodes (Tylenchorhynchus claytoni, Criconemoides sp., Pratylenchus leiocephalus, Aphelenchoides spp., Dorylaimus sp., Seinura tenuicaudata, Pratylenchus leiocephalus var., Xiphinema americanum) were found to be associated with poor growth of peanuts in Georgia and dark pock marks on the shells, according to Lytton W. Boyle. (PDR 34(3): 61-62).

GOSSYPIUM SP. COTTON: Ascochyta gossypii, Ascochyta blight was reported widespread in Georgia by D. D. Morey and J. H. Miller. There was an average reduction in stand of 25 to 85 percent. Later in the season when temperatures were higher and there was less rain the disease was very appreciably retarded. The most striking fact observed was the control obtained by rotations. (PDR 33(8): 310-311).

Polyspora lini and root constriction, see Table 1.

Sclerotium rolfsii, boll rot, caused an unusual type of damage to cotton bolls in Alabama in August 1949. Only full grown bolls were attacked, which were 1.5 to 2.0 feet from the soil surface. (James A. Lyle, PDR 33(11): 441).

MENTHA SPP. MINT: C. A. Thomas reported observations on diseases of medicinal and other special crops. Verticillium wilt remained the No. 1 problem for mint growers in Indiana and Michigan. He stated that the only satisfactory control of wilt appears to be the development of resistant varieties. (PDR 33(12): 453-454).

NICOTIANA TABACUM. TOBACCO: Peronospora tabacina, blue mold (downy mildew) was observed in a Cook County seedbed January 11, 1949, according to John G. Gaines. He stated that this was the earliest seasonal observation ever made of this disease in a commercial Georgia seedbed. The grower reported seeing disease symptoms in this bed as early as January 8. (PDR 33(3): 166-167). Georgia and Florida tobacco seedbeds escaped severe damage because of unfavorable weather for the disease later. In contrast in North and South Carolina blue mold occurred in the worst attack in ten years. Contributing factors of the epidemic seemed to be early appearance, favorable weather conditions and indifference of growers to control measures because of slight occurrence last year. Paul R. Miller pointed out that up to April 26 the incidence of blue mold had provided a double object lesson in control, (1) certainty of control by recommended materials used as recommended, (2) the necessity of not basing control measures on last year's occurrence.

April weather conditions in Florida were favorable for blue mold and the most severe epidemic developed in the fields of the flue-cured tobacco that has ever occurred. A downy mildew was also found in North Carolina in a plant bed of eggplant, pepper and tomato seedlings, which was located 300 yards from a tobacco bed in which blue mold was active. (PDR 33(4): 238-243). For distribution of tobacco blue mold in 1949, see PDR Supp. 188, page 299, December 1949.

H. E. Heggestad and E. E. Clayton, reporting on the occurrence of black shank (Phytophthora parasitica var. nicotianae) and other diseases in Tennessee, stated that black shank was found in Eastern Tennessee for the first time. A survey showed infection on about 35 farms in Greene County. (PDR 34(1): 23-24).

Pseudomonas tabaci, wildfire, was observed in widespread occurrence in tobacco plant beds of East Tennessee this spring, according to Howard E. Heggestad. Frequent rains favored disease development. This unusual widespread occurrence of wildfire in plant beds is accociated with increased prevalence of the disease noted in the field in recent years. (PDR 33(7): 286-287).

Sclerotium rolfsii, sclerotial blight. During the second week of August, S. B. Fenne reported this disease severe in many tobacco and peanut fields in Sussex, Greensville, and Brunswick Counties, Virginia. He stated that sclerotial blight was more severe on peanuts than he had ever seen it. Farmers felt there would be a severe loss to their peanut crops. In several tobacco fields 5 percent of the plants were killed. (PDR 33(10): 403).

SESAMUM ORIENTALE. SESAME: Pseudomonas sesami, leaf spot or blight. In the experimental plantings of the Texas Research Foundation at Renner a serious leaf spot or blight condition developed on sesame seedlings about June 10. The organism was identified as P. sesami. (E. M. Hildebrand, PDR 33(8): 331).

DISEASES OF TREES AND SHRUBS

W. A. Campbell and others prepared an annotated selective list of wood-decaying fungi of Georgia. Many of the wood-decaying species were collected in the fall of 1949. (PDR 34(5): 128-134).

George H. Hepting and E. Richard Toole listed some Southeastern tree diseases observed in 1948 and 1949. The more prevalent diseases in 1949 included mimosa wilt, oak dying, white pine blight, littleleaf of shortleaf pine, redbud canker, root and heart rots of redcedar, and sycamore anthracnose. (PDR 34(5): 135-137).

AESCULUS HIPPOCASTANUM AND A. OCTANDRA, HORSECHESTNUT AND BUCKEYE: Glomerella cingulata, anthracnose, on buckeye in Missouri was reported by E. S. Luttrell as a leaf disease of little importance. On horsechestnut he reported it to be a serious disease, causing a dieback of the branches and severe cankers on the branches and trunk in addition to leaf lesions. (PDR 33(8): 324-327).

BUDDLEIA ASIATICA. William W. Diehl reported that a specimen of B. asiatica with numerous sooty spots on the lower surface of the leaves was found by C. L. Lefebvre on March 23, 1949 in a greenhouse in Clarke County, Virginia. The effect was that of "scab". He referred the organism to Cladosporium heugelinianum Thüm. , stating that the specimen may be the second finding of the fungus in America. One other specimen collected at Wilmington, Delaware in 1926 was so identified. (PDR 33(6): 274).

FRAXINUS PENNSYLVANICA LANCEOLATA. GREEN ASH: Verticillium alboatrum, see Table 1.

FRAXINUS VELUTINA. ARIZONA ASH: Gloeosporium aridum, anthracnose. Donald M. Coe and Willis W. Wagener reported (May 1949) an outbreak of ash anthracnose, which apparently was unknown in the State before 1947, in the Central Valley region of California in 1948. A delayed spring, marked by prolonged rains and cool temperatures, provided very favorable conditions for the development and spread of this disease in 1948. (PDR 33(5): 232).

JUNIPERUS SPP., JUNIPERS: Phomopsis juniperovora, cedar blight. According to Glenn G. Hahn the scant number of known junipers reported to be resistant to cedar blight is further reduced as the result of tests that have shown the Dundee Juniper, Juniperus virginiana var. hilli and two species of J. virginiana, to be susceptible to cedar blight under experimental conditions. (PDR 33(8): 330).

LIQUIDAMBAR STYRACIFLUA. SWEETGUM: Leader dieback was noted on sweetgums in Georgia in the spring of 1948. This "new" disease of sweetgum appeared more widespread in 1949 than in 1948 according to Kenneth H. Garren, who described the disease. Neither the causal agent nor the importance of this disease has yet been definitely established. (PDR 33(9): 351-353).

PINUS SPP. PINE: Ralph M. Lindgren and Berch W. Henry discussed some promising soil treatments for controlling root disease and weeds in a southern pine nursery. (PDR 33(5): 228-231).

PINUS MONTICOLA. WESTERN WHITE PINE: Scopularia serpens (?). While engaged in investigations of "pole blight", a disease of unknown cause, attacking western white pine in Idaho, Montana, and Washington, Gill and Andrews made several hundred isolations to determine what fungi, if any, were involved. Several members of the genus Scopularia were isolated. One of them resembled S. serpens more strongly than it did any species previously reported on western white pine from this region. Preliminary tests indicated that it may be parasitic on bark as well as wood. The fungus was isolated from stems and roots of diseased as well as apparently healthy trees at several widely scattered points throughout the range of the host (PDR 35(5): 227).

P. PONDEROSA. PONDEROSA PINE: Scirrhia acicola, brown spot needle disease. Of the three fungi reported and described by E. S. Luttrell as associated with decline of Pinus ponderosa in Missouri, the brown spot organisms seemed to be the primary cause. The abundance of this fungus and the marked stunting of the trees indicated that the brown-spot disease had been present for a number of years. Since brown spot has been considered serious only as a seedling disease of southern pines, he pointed out that its severity here on older trees may indicate that the ponderosa pine is inherently more susceptible. Phaeocryptopus pinastri and Lophodermium pinastri, the other two fungi associated, were obviously of secondary importance. (PDR 33(10): 397-401).

QUERCUS SPP. OAK: Chalara quercina, oak wilt, is one of the most destructive tree diseases, according to Roy A. Young. Large oak trees may be killed within a few weeks after the first appearance of wilt symptoms. The disease was found to be caused by this fungus in 1942. However, little is known about the manner in which this pathogen invades and destroys oak trees so rapidly. Studies were undertaken to determine the route of parasitic invasion within infected oak trees, the mechanism of wilting, the influence of environmental conditions on development of the parasite, and means of preventing spread of the disease in State parks and forests of Iowa.

The fungus was found to overwinter commonly in white and bur oak trees, in stumps of diseased trees that had been removed, and occasionally in red oak trees that were infected late in the season.

The disease spreads in a pattern not typical of windblown spore or insect dissemination. C. quercina usually spreads from an infection locus to the nearest healthy trees.

Data on destruction of species of oak showed much greater losses in trees of the red oak group than in trees of the white oak group. No difference was observed in the incidence of infection of different sizes of trees.

No host specificity was observed in cross-inoculation tests with isolates from different species of oaks.

C. quercina was isolated from all parts of diseased trees except the acorn.

Isolates of C. quercina grew well over a range from 16° to 28° C. with most rapid growth at 22° to 26° C.

Eradication experiments showed that the pathogen could be removed from an area by extreme sanitary measures. Incidence of infection was reduced by removal of the diseased trees from areas of infection. (Phytopath. 39(6): 425-441). For first report of oak wilt in Indiana, see Table 1. Distribution of oak wilt in nine counties in Missouri was reported by T. W. Bretz. (PDR 33 (11): 437-438). The known distribution of oak wilt in the United States at the end of the year is shown on a map (PDR 34(3): 80) compiled in the Division of Forest Pathology; also the occurrence of the disease in Illinois and Minnesota is summarized. The organism is becoming more widespread. (PDR 34(3): 81-82).

QUERCUS VIRGINIANA. LIVE OAK: "The dying of live oaks in certain areas of Texas has become a serious problem for home owners and ranchmen. Both large and small trees die at different seasons and under a wide variety of environmental conditions. As yet, no causal agent has been identified with this trouble, which is presumed to be some sort of disease. Timely, severe pruning of all large branches at the first appearance of the trouble has resulted in apparent recovery and renewed growth from the main trunk of the tree." (Dunlap and Harrison. Phytopath. 39(6): 495. Abstr.).

RHUS TYPHINA. STAGHORN SUMAC: Alternaria tenuis, leaf spot, see Table 1.

R. TYPHINA. STAGHORN SUMAC: Fusarium oxysporum f. rhois, Fusarium wilt. During the summer of 1946, according to E. Richard Toole, patches of wilting and dead staghorn sumac were found along the Blue Ridge Parkway, Virginia. Sumac clumps were affected in an area of about 5 acres. In 1947, many more sumac plants were found affected in the original area, and scattered affected shrubs were observed up to about 3 miles north and 7 miles south from this point. In the fall of 1948, Hepting observed staghorn sumac plants with wilt symptoms in New Haven, Connecticut. Typical cultures of F. oxysporum f. rhois were isolated. This disease has not been reported from any other localities to date or any other species of Rhus. The symptoms and etiology of Fusarium wilt of staghorn sumac are described. (Phytopath. 39(9): 754-759).

ULMUS SPP. ELM: Ceratostomella ulmi, Dutch elm disease. Propagation of disease-resistant elms will be greatly expedited by the leaf bud cutting technique described by T. W. Bretz. (PDR 33(11): 434-436).

Phytophthora inflata sp. nov., pit canker. Nestor E. Caroselli and C. M. Tucker reported the American elm (U. americana) is the most susceptible species but the disease has been found on slippery elm (U. fulva). The disease has been known for over forty years but its cause has heretofore been undetermined. It occurs widely distributed in New York, Pennsylvania, Connecticut, and Massachusetts. (Phytopath. 39(6): 481-488).

DISEASES OF VEGETABLE CROPS

Philip J. Leyendecker reported a number of unrecorded or unusual plant diseases that occurred in New Mexico during the growing season of 1949. (PDR 34(2); 39-40).

The sclerotiniose disease caused by Sclerotinia sclerotiorum, of various vegetable crops, according to W. D. Moore, has become of increasing importance to growers in many sections of the United States during recent years, causing losses both in the field and during transit to market. While the disease is widely distributed over the country, he points out that one of the most heavily infected areas at this time is in south Florida, where since 1938 it has appeared in practically all of the vegetable growing areas of the lower part of the peninsula and has become a factor in the production of several crops. Attempts to control this disease have been limited to one or two crops and to fairly restricted conditions of culture. One of the most comprehensive attacks on the problem was by Brooks who showed that a combination of flooding and soil treatment with cyanamid would kill a large percentage of the sclerotia in muck soils. His flooding work has suggested a method of control that may be adapted to many areas of Florida and other States where ample supplies of water are available. A series of experiments were conducted in south Florida, the results of which Moore presented (Phytopath. 39(11): 920-927). When flooded in marl, muck, or sandy soils, sclerotia of Sclerotinia sclerotiorum decayed completely within 23 to 45 days. Decay was equally rapid during periods of flooding regardless of depth of burial in soil. Sclerotial decay was as rapid when alternately flooded and drained at intervals of three days as when flooded continuously. The addition of green organic matter to the soil surface did not hasten rates of sclerotial decay during period of flooding. Sclerotia decayed during field flooding at approximately the same rate as under laboratory conditions. In commercial fields sclerotia decayed slowly and incompletely when subjected only to prevailing rainfall in nonflooded fields.

ALLIUM CEPA. ONION: Urocystis cepulae, smut, see Table 1.

ALLIUM ASCALONICUM. SHALLOT: Peronospora destructor, onion mildew. According to E. C. Tims, the earliest development of onion mildew on record in Louisiana was found on shallot in Terrebonne Parish January 24, 1949. The unusually mild weather during the entire first three weeks of January, combined with much moisture in the form of rain, fog and heavy dews, made conditions ideal for early mildew development. This year the early appearance of mildew is more remarkable because of the fact that the disease was not observed at all during the spring of 1948. (PDR 33(3): 166).

APIUM GRAVEOLENS. CELERY: Erwinia carotovora, heart rot of celery was discussed by R. C. Rose as being affected by the weather in Minnesota during the summer. Unusual amounts of the disease occurred. (PDR 33(10): 386-387).

BETA VULGARIS. BEET: Peronospora schachtii, downy mildew. Chupp and Alvarez-Garcia reported that one of the New York beet growers brought beet seed grown in California.

He complained that his greenhouse crop of beets was almost destroyed by some disease, which was concluded to be P. schachtii. The disease has never been reported in New York State as present in the field. (PDR 33(7): 301).

BRASSICA OLERACEA VAR. BOTRYTIS. CAULIFLOWER: see under B. O. var. CAPITATA.

BRASSICA OLERACEA VAR. CAPITATA. CABBAGE: Alternaria oleracea, Alternaria leaf spot, is one of the most destructive diseases of cabbage and cauliflower in Florida, according to Eddins and Burrell. It develops rapidly during warm, rainy weather and causes damping-off of seedlings, a wire-stem and cankers on stems of seedlings; and a spotting of leaves and heads of older plants. Several fields were abandoned before cutting as a result of head spotting. (PDR 33(8): 322-324).

Fusarium oxysporum f. conglutinans, yellows. Eddins and Burrell described a severe outbreak of cabbage yellows in the Florida Hastings area. The disease had not been noted in this section prior to November 1948. No reports of yellows in cabbage fields outside of the Hastings section had been received during the 1948-49 season. It was found at Hastings in 27 fields comprising approximately 313 acres. It destroyed 50 to 90 percent of the crop in 30 acres, 10 to 30 percent in 78 acres and 2 to 5 percent in 108 acres; a trace was seen in 97 acres. The disease was introduced into the Hastings section with affected seedling plants grown in yellows-sick soil in other States. (PDR 33(7): 249-251). Yellows was also found in Louisiana, see Table 1.

Peronospora parasitica, downy mildew, killed all plants in three seedbeds totaling ten acres and caused great damage in others in the Hastings and Sanford areas of Florida. Head spotting was common in all cabbage fields. This disease and Alternaria leaf spot caused greater losses during the 1948-49 season than all other cabbage diseases combined. (PDR 33(8): 322-324).

Sclerotinia sclerotiorum, watery rot, was observed on cabbage seedlings in several plant beds at Hastings, Florida. Five to ten percent of the plants drawn from one affected bed were killed by the disease soon after they were transplanted to fields totaling 100 acres. The disease was present in all maturing crops of cabbage and cauliflower but extensive damage was limited to a few fields. (PDR 33(8): 322-324).

D. M. MacLean reported on the progress of the experimental application of dusts and sprays to cabbage seed plants for control of Sclerotinia sclerotiorum, stalk rot, in Washington. It was felt that control might be obtained by proper timing of spray applications, with plants spaced to enable a thorough coverage with fungicides. (PDR 34(3): 78-79).

Xanthomonas campestris, black rot. Eddins and Burrell reported that black rot was generally distributed in cabbage fields in the Hastings and Sanford areas of Florida. Observations indicated that imported black rot-infected plants, infested seedbed soil, and diseased seed were the principal sources of the disease in the 1948-1949 season. (PDR 33(8): 322-324).

CRUCIFERS. BRUSSELS SPROUTS, CABBAGE, CAULIFLOWER, ETC.: Phoma lingam, black leg, has been found to be an important root parasite of some cultivated cruciferous crops in three counties of California. Because aerial infections of cultivated crops have not been found, survival of the fungus appears to depend on subterranean parts of crucifers that are continuously cropped on the land. The seed produced by diseased cultivated crucifers was found to be uninfected because of the absence of the aerial phase of black leg. (Snyder and Baker, PDR 34(1): 21-22).

CUCURBITS. CUCUMBER, MELON, SQUASH: Cladosporium cucumerinum, scab. Acti-dione was tested for field control of cucumber scab in Michigan, with favorable results reported by Donald J. deZeeuw and John R. Vaughn. (PDR 34(1): 7-8).

Fusarium oxysporum f. niveum, Fusarium wilt, was reported by Weber and others as being the most prevalent and destructive disease on watermelons in the Gainesville area of Florida during the 1949 season. The severity varied from slight traces in new soil and on disease-resistant varieties, to 100 percent infection and 50 percent loss in plantings of common varieties on old cultivated lands, even though they had "laid out" for a decade or more. The dry six-week period previous to June undoubtedly was an exceedingly important factor in the present manifestation of the disease. The lack of rain and resulting higher temperatures were doubly responsible for the excessive prevalence and destructiveness of the disease. (PDR 33(7): 285-286).

Heterodera marioni, root knot. In preliminary tests with numerous chemicals, reported by Tarjan and Moore, seed treatment was ineffective in reducing cucumber seedling infection by the root-knot nematode, or in increasing size and quality of yield. (PDR 33(12): 447-450).

Mycosphaerella citrullina, gummy stem blight, as stated by Weber and others was probably more prevalent on this year's watermelon crop, in the Gainesville area of Florida, than for several years in the past. Regardless of source of seed it was present in almost every field.

On one 100-acre field 100 percent infection was noted. (PDR 33(7): 285-286).

Incidence of cucurbit diseases in South Carolina in 1949 was summarized by Robert Aycock and Morris Hughes. They state that the worst epidemic of cucurbit downy mildew (Pseudoperonospora cubensis) since 1938 occurred this season. Weather conditions were highly favorable for primary infection and secondary spread, so that the cucumber crop was completely killed in two to three weeks. Downy mildew also became serious on cantaloupes. Farmers estimated 60 to 90 percent financial losses. Downy mildew was also a limiting factor in watermelon production. (PDR 33(11): 425-428).

Pseudoperonospora cubensis, downy mildew. Paul R. Miller in his summary on status of the warning service to April 26, stated that in southern Florida downy mildew had been present since the latter part of October. In the Homestead area Yellow Crookneck summer squash planted throughout the winter is commonly affected, and, since downy mildew attacks the maturing crop, no control is practiced. In central Florida the disease was reported in March as being very serious on cucumbers. Later in the month dry weather reduced attack on both cucumbers and watermelon in various parts of the State, (PDR 33(6): 238-243, Fig. 3 shows distribution and severity on the various hosts.)

In the final report by Miller and O'Brien (Supp. 188, page 299) downy mildew of cucurbits was present over the eastern coastline States (Fig. 4 showing distribution). Severe damage was reported in Connecticut, Virginia, Louisiana, South Carolina, Arkansas and Maryland. Reduction in yield was reported as trace or none to 75 percent.

Magnesium deficiency. Charles Chupp and H. John Carew reported a severe spotting of muskmelon foliage in many fields of the muskmelon section of upState New York, which apparently was an abnormal manifestation of magnesium deficiency induced by long-continued hot dry weather. (PDR 33(3): 340).

Virus diseases. Paul D. Keener reported results of surveys to ascertain distribution and prevalence of melon viruses in the Salt River Valley in Arizona. With the exception of late-planted fields, mosaics were less widespread and severe in all melons in 1949 than in 1948. Although there were no general losses in the Salt River Valley from mosaics, several isolated centers of severe infection were noted in cantaloupes and honey dew melons. Curly-top virus was more pronounced and perhaps more significant than mosaics this year in plantings of cantaloupes and honey dews. (PDR 33(11): 429-430). "Cantaloup Mosaic Investigations in the Imperial Valley, 1949" are reported in Supplement 187. This is a continuation of the work reported in Supplement 180. The authors stated that the increasing prevalence of mosaic in muskmelons in the Imperial Valley has been correlated with the increasing area devoted to sugar beets. During the past two seasons the prevalence and rate of spread of mosaic in muskmelons has been correlated with the number of aphids involved in the spring migrations. Tests with numerous insecticides indicated that mosaic cannot be controlled through their application in the fields.

DAUCUS CAROTA. CARROT: Alternaria dauci, blight, was discovered this year causing the first major outbreak in New Mexico, according to Leyendecker. It is believed that the appearance of the disease in epiphytotic form was due to the unusually high amount of rainfall and the high humidity of July and August. Airplane dusting with a number of commercial copper fungicides checked temporarily the damage caused by the pathogen. (PDR 33(11): 431).

Rhizoctonia carotae, crater rot, has occurred in New York carrots since 1934, according to Ramsey and Smith, who reported the disease in epiphytotic form in carrots in Cook County, Illinois. A large Chicago soup company stored about 22 million pounds of these carrots in various cold storages for processing during the winter and spring months (1948-49). The carrots removed from storage toward the latter part of February began to show this decay, and during March the loss varied from 5 to 90 percent with different lots. The most severe loss occurred in top-layer baskets stored in a very humid room. Some baskets of carrots showed 100 percent infection by this organism. The soup company reported that their loss on account of this disease would run well over $100,000. In addition to the total loss of many baskets of carrots, the cost of processing the moderately affected roots was almost doubled. (PDR 33(6): 248-249. 2 Figs.).

IPOMOEA BATATAS. SWEETPOTATO: Mottle necrosis, see Table 1.

LACTUCA SATIVA. LETTUCE: Bremia lactucae, downy mildew. Saul Rich reported that in March of this year, downy mildew severely attacked lettuce seedlings in cold frames. The disease was first observed in the area around New Haven. This outbreak is the first of its kind in Connecticut in approximately 25 years. The attack was brought on by a period of cold, wet weather occurring when the plants were three to four inches high. (PDR 33(5): 233-234).

Big-vein (virus). According to Chupp and Paddock in the spring of 1949 an epidemic of lettuce big-vein virus occurred on light, sandy soil on Long Island, New York, where up to the present incidence has been sporadic and of minor importance. At Kingston, Ulster County 20 percent of the plants were affected, and in Nassau County losses ranged from 10 to nearly 100 percent. Apparently a mild winter followed by periods of unusually high temperatures and rainfall in March and April were responsible for the outbreak. (PDR 33(7): 280-281).

Saul Rich reported that this new lettuce disease is gaining prominence in Connecticut. For the past few years, Connecticut growers of early planted lettuce have sustained serious losses because their crop failed to mature in time for the high priced early market. The plants would do well for a while, but about a month after coming up or being set out they would stop developing and remain at a standstill.

Most growers blamed "unusual weather" for their troubles, until the situation was brought to the attention of the Experiment Station in 1946. Dr. Horsfall diagnosed and proved this disease to be big vein. Research workers have uncovered the following fundamental information about lettuce big vein: (1) The disease is caused by a soil-borne virus which can survive in lettuce-free soil for at least eight years. (2) the disease may be carried by a lettuce root-aphid, but an insect is not required for the plant to pick up the disease from the infected soil. (3) Healthy plants can pick up the disease only through their roots. (4) The severity of symptoms is favored by cool temperatures and excess soil moisture, and infected plants have a good chance for maturing normally when air temperatures are above 60° F. and soil moisture is not excessive. (5) Big vein infected soil can be made safe for lettuce by soil fumigation with formaldehyde or chloropicrin, or by heating with steam to 145° F. for 30 minutes. Other more practical control methods are being worked out. (Conn. Agr. Expt. Sta. Frontiers of Plant Science 2(1): 8, May 1949).

LYCOPERSICON ESCULENTUM. TOMATO: Cladosporium fulvum, leaf mold. F. S. Gooch reported that in a greenhouse at Southwestern Louisiana Institute a crop of tomatoes planted in the fall was severely attacked by leaf mold. (PDR 33(4): 206).

Colletotrichum phomoides, anthracnose. P. A. Young reported that although this disease was found in a few fruits at the Tomato Disease Laboratory near Jacksonville, Texas in 1943, it did not become serious until July 1949. Infection was nearly 10 percent in some cases. (PDR 33 (10): 390).

Rhizoctonia solani, canker. According to Robert A. Conover, in Dade County, Florida, the winter growing season of 1948-1949 was notable for the widespread, and in many cases severe, attacks of R. solani on vegetable crops. Losses of green-wrap tomatoes due to soil rot were unusually high, amounting to as much as 50 percent of certain pickings of experimental plantings. The formation of cankers at the base of tomato branches by this parasite was of particular interest. Since no reference to this symptom has been found in the available literature, he presented a description of it. (Phytopath. 39(11): 950-951).

Stemphylium solani, gray leaf spot. R. W. Samson reported factors associated with severe gray leaf spot on mid-western tomatoes. The disease appeared to have been widespread in Indiana, judging from the canning companies' reports and personal examination of many fields. (PDR 33(10): 387-389).

Internal browning (Marmor tabaci). Francis O. Holmes stated that in outbreaks of internal-browning disease of tomato in Middlesex County, New Jersey, five cases of close association between mosaic plantains and the first affected tomato plants suggested that infection of tomatoes had arisen from this week reservoir. Both the plantains and the tomatoes were found to contain a series of similar but unusual strains of tobacco-mosaic virus. In 1949 on one farm a practical control of internal browning was achieved by locating tomato fields at a distance from all known infected plantains. Environmental conditions also seem to play a part. (Phytopath. 40: 487-492).

Russeting. P. A. Young, in Texas, reported extensive russeting of the stems and dying of the leaves, caused by the tomato russet mite, Phyllocoptes destructor, It occurred in five fields of tomatoes at the Tomato Disease Laboratory near Jacksonville in June 1949. Apparently this is the first report of this serious abnormality in East Texas. (PDR 33(10): 390).

PHASEOLUS VULGARIS. BEAN: Corticium microsclerotia, web blight, was reported by T. J. Nugent as causing considerable damage in Eastern Virginia during August when the temperature favored the growth of the organism. (PDR 33(10): 402).

Jack P. Meiners reported the incidence of bean diseases in southern Idaho in 1949. Dry root rot (Fusarium solani f. phaseoli) was found to be nearly co-extensive with the crop in this region. The disease undoubtedly caused heavy damage. (PDR 34(1): 14).

Sclerotinia sclerotiorum, white mold. B. F. Dana and Edward K. Vaughan reported that various materials were tested for the control of Sclerotinia on beans in Oregon. A brief discussion of the results obtained in 1949 was presented. (PDR 34(1): 8-14).

Uromyces phaseoli typica, rust. L. O. Weaver and C. P. Marcus, Jr. reported a new strain of the bean rust fungus that caused considerable loss to late crops on the Eastern Shore of Maryland. (PDR 33(12): 483-484).

SOLANUM TUBEROSUM. POTATO: Erysiphe cichoracearum, powdery mildew, see Table 1.

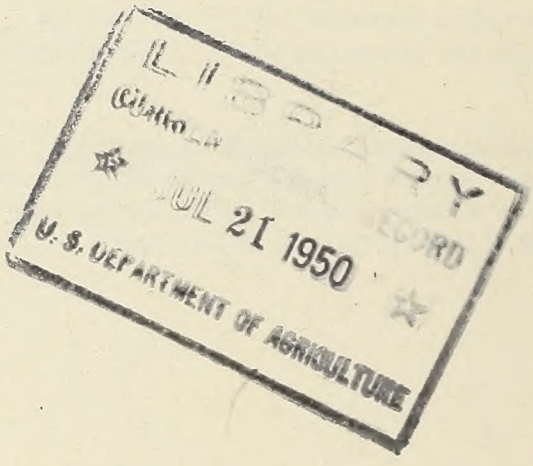
Phytophthora infestans, late blight. Reports up to April 26 did not indicate serious damage according to Paul R. Miller. (PDR 33(6): 238-243, appearance and distribution of late blight on potato and tomato are shown on map (Fig. 2). In Florida, decreased prevalence, as compared with the last few years was shown by easier control and moderate to slight loss. The disease was reported on potato in the Lower Rio Grande Valley of Texas and the potato-growing counties of southern Louisiana and southern Alabama. Except for the reports from Florida and one from Indiana, all the records of occurrence on tomato up to April 26 involved seedling transplants shipped from outside sections.

In the final summary by Miller and Muriel O'Brien on late blight of potato and tomato, they reported that the disease was nationally of little economic importance in 1949, although it was reported from numerous places as shown on their maps (PDR Supp. 188: 297-314). The increased use of fungicides for control together with the dry summer probably contributed to the low incidence of the disease.

The five papers read at the New York symposium, sponsored by the Plant Disease Survey on the general subject of "Plant Disease Forecasting" were published in Supplement 190.

Streptomyces scabies, scab. W. J. Hooker and C. E. Peterson reported a strain of the scab organism attacking Cayuga, a previously highly resistant potato variety in Iowa. (PDR 33 (7): 282).

SPINACIA OLERACEA. SPINACH: Peronospora farinosa, downy mildew. C. M. Wright and W. D. Yerkes, Jr. reported observations indicating that this fungus overwinters by means of oospores in the Walla-Walla area of Washington. The disease became so severe during the past three years that growers rely only on a single fall crop. (PDR 34(1): 28).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